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Biochemistry

# IMPACT OF CHRONIC RENAL FUNCTION DURING THE TREATMENT OF TUBERCULOSIS

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**ABSTRACT** **Introduction-** CHRONIC RENAL FAILURE (CRF) is an established risk factor for tuberculosis (TB). Both TB incidence and prevalence are known to be higher in patients with CRF than in the general population. CRF is becoming increasingly common. The incidence and prevalence of patients on haemodialysis are respectively 4.9 and 13 per 100,000 population, and 35,000 CRF patients are estimated to currently live in Agra region. Despite the relatively high population level burden of CRF and increased risk of TB among patients with CRF, there are limited data on outcomes of CRF patients treated for TB. The majority of data to date are from case series, some of which have reported high and others low rates of adverse events and mortality. Few studies have directly compared outcomes in TB patients with and without CRF. **Aim-** Impact of Chronic renal function during the treatment of tuberculosis Patients. **Material and Method**- A case-control study of 50 diagnosed TB patients conducted at Biochemistry department in collaboration with TB and Chest Department at Sarojini Naidu Medical College , AGRA. **Result-** In this study Blood Urea and Uric acid were found mild significant [<0.05] in case 83.1±34.2 (Mean±SD) as comparison of healthy person (Mean±SD) 80.3±30.7. Serum Creatinine were found significant [<0.001] in case 31.6±30.0 (Mean±SD) as comparisons of healthy person (Mean±SD) 18.5±16.09. **Conclusion-** TB patients with CRF are at increased risk of death. More intensive monitoring of patients with CRF should be considered by the National TB Programme.

**KEYWORDS :** Tuberculosis; Blood Urea; Serum Creatinine Uric Acid.

## INTRODUCTION-

CHRONIC RENAL FAILURE (CRF) is an established risk factor for tuberculosis (TB).1-2 Both TB incidence and prevalence are known to be higher in patients with CRF than in the general population.3-6 CRF is becoming increasingly common. The incidence and prevalence of patients on hemodialysis are respectively 4.9 and 13 per 100,000 population, and 35,000 CRF patients are estimated to currently live in Agra region.7 Despite the relatively high population level burden of CRF and increased risk of TB among patients with CRF, there are limited data on outcomes of CRF patients treated for TB.8 The majority of data to date are from case series, some of which have reported high and others low rates of adverse events and mortality. Few studies have directly compared outcomes in TB patients with and without CRF.9-12 Hyperuricemia is a known cause of renal damage.13 Both functional and structural damage to the kidney may result from hyperuricaemia.14 However studies on effect of drug-induced hyperuricemia is very rare in this environment. This fact informed our decision to study the effect of anti-tuberculous drug-induced hyperuricemia on renal function in parricides with pulmonary tuberculosis. Despite the availability of highly efficacious treatment for TB, it remains a major global health problem. In 1993, the World Health Organization (WHO) declared TB a global public health emergency, at a time when an estimated7–8 million cases and 1.3–1.6 million deaths occurred each year. In 2010, there were an estimated 8.5–9.2 million cases and 1.2–1.5 million deaths (including deaths from TB among HIV-positive people). In 2010, there were an estimated 8.5–9.2 million cases and 1.2–1.5 million deaths (including deaths from TB among HIV-positive people).[15]

## MATERIAL AND METHOD-

A case-control study of 50 diagnosed TB patients conducted at Biochemistry department in collaboration with TB and Chest Department at Sarojini Naidu Medical College , AGRA.

### A. INCLUSION CRITERIA-

- Diagnosed Pulmonary TB patient on regular treatment

### B. EXCLUSION CRITERIA –

- Patients having other autoimmune disorders like AIDS Or Chronic kidney disease.

## SAMPLE COLLECTION:

Take a very deep breath and hold the air for 5 seconds and Slowly breath out. Take another deep breath and cough hard until some sputum comes up into your mouth. Spit the sputum into the plastic cup (container). keep doing this until the sputum reaches the 5 ml. line (or more) on the plastic cup this is about 1 teaspoon of sputum.

## ESTIMATION METHOD:

Blood urea and serum creatinine was estimated on fully auto-analyzer by Urease and Jaffe's method.

Diagnosis of TB is based on the finding of a smear positive for ACID-FAST BACILLI [AFB]

## STATISTICAL ANALYSIS:

| Parameter | Case (Mean±SD) | Control (Mean±SD) | 'p' Value |
|---|---|---|---|
| Blood Urea | 83.1±34.2 | 80.3±30.7 | <0.05 |
| Sr. Creatinine | 31.6±30.0 | 18.5±16.09 | <0.001 |
| Sr. Uric Acid | 52.2±32.0 | 25.7±18±04 | <0.05 |

## RESULT-

In this study Blood Urea and Uric acid were found mild significant [<0.05] in case 83.1±34.2 (Mean±SD) as comparision of healthy person (Mean±SD) 80.3±30.7.

Serum Creatinine were found significant [<0.001] in case 31.6±30.0 (Mean±SD) as comparisons of healthy person (Mean±SD) 18.5±16.09.

## DISCUSSION :

Hussein et al. 2003, reported that TB is generally diagnosed in the first year after beginning dialysis, and this is attributed to the seriously impaired host defense mechanism in these patients during the initial dialysis period.16 Uremia is commonly associated with fatigue, mal-nutrition, and other nonspecific complaints, possibly concealing the course of an underlying TB disease. This atypical presentation may often lead to a delay in accurate diagnosis and therapy, sometimes resulting in patient death. Therefore, nephrologists should always have a high degree of suspicion and consider the possibility of TB whenever confronted with an ESRD patient presenting with general symptoms such as fever, weight loss, and/or lymphadenopathy. The diagnosis would then require the isolation of acid-fast bacilli, the finding of typical caseating granuloma on biopsy, or the recovery of tubercle bacilli from the culture of the biopsy material.17 TB progress insidiously in ERSD patients. The most common symptoms are non specific and mimic uraemia (such as fever, malaise and weight loss).17 Pulmonary TB in the presence of a normal chest X-ray has been reported previously. A normal chest radiograph has a high negative predictive value for the presence of active TB. However, the frequency of false-negative examinations is approximately 1% in the adult immune competent population and increases to 7–15% in HIV-seropositive individuals. Darcy et al., had found that the incidence of smear-positive pulmonary TB with a normal chest radiograph was

61% in the period from 1988 to 1989 and steadily increased to 10% in the period from 1996 to 1997.18-21 The results of previous studies evaluating outcomes of anti-tuberculosis treatment in a CRF setting are varied, with some reporting high frequency of mortality and others favorable outcomes.[22-24]

## CONCLUSION:

TB patients with CRF are at increased risk of death. More intensive monitoring of patients with CRF should be considered by the National TB Programme. The conclusion from these observations is that there is an increased prevalence of CRF among patients. All efforts should then be made, including invasive investigations, to reach an early diagnosis, as this determines the outcomes.

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